Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Union Carbide Corp - St Charles Operations
Environmental Operations Plant
Taft, St. Charles Parish, Louisiana
Agency Interest Number: 2083
Activity Number: PER20070043
Proposed Permit Number: 2104-V2

I. APPLICANT

Company:
Union Carbide Corp - St Charles Operations
PO Box 50
Hahnville, Louisiana 70057-0050

Facility:
Union Carbide Corp- Environmental Operations Plant (EnvOps)
355 Hwy 3142 Gate 28
Taft, St. Charles Parish, Louisiana
Approximately 2 miles west of Hahnville, on the west bank of the Mississippi River, off LA Highway 3142 at corner of LA Hwy 18. Approximate UTM coordinates are 746.184 km East and 3,319.222 km North, Zone 15.

II. FACILITY AND CURRENT PERMIT STATUS

Union Carbide Corporation, a subsidiary of the Dow Chemical Company, owns and operates a chemical manufacturing facility in St. Charles Parish near Taft. The St. Charles Operations (SCO) facility is an integrated petrochemical manufacturing complex, converting petroleum-based raw materials into a variety of basic building block, intermediate chemicals and plastics. The products from this facility eventually wind-up in thousands of everyday household, business, and consumer products. The facility as a whole started operation before 1969.

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Union Carbide Corp - St Charles Operations is a designated Part 70 source. Several Part 70 permits have been issued to the operating units within the complex. These include:

Permit No.	Unit or Source	Date Issued
2350-V3	LP-3 Unit	12/30/2003*
2858-V0	PXC Unit *(Rescinded 4/8/2008)*	7/8/2004
2422-V1	Olefins I & II	9/30/2004*
2343-V1	Energy Systems	1/31/2008
2421-V0	Amines Plants	11/10/2005
2656-V0	Olefins Distribution/Site Logistics Units	3/13/2006
2214-V0	LP-6	3/27/2006
477-V0	Unit 5 (Amines I) *(Rescinded 7/12/2008)*	6/08/2006
2254-V0	Acrylics 2 *(Amended 7/20/2007)*	6/19/2006
2876-V1	Unit 9	8/10/2006
476-V1	Oxide I	1/30/2007
513-V2	Acrylics i	6/15/2007
1909-V1	Higher Glycols Plant	6/18/2007
2446-V1	Unit 8 (EXP)	7/3/2007
2257-V4	TB1 and TB2 Units	10/9/2007
2814-V1	MGE Plant	2/28/2008
373-V2	Oxide II	6/13/2008
1912-V0	Specialty Products Unit (SPU)	6/25/2009

* Timely renewal submitted.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application and Emission Inventory Questionnaire were submitted by Union Carbide Corp on February 20, 2008 requesting a Part 70 operating permit renewal. Additional information dated October 17, November 21, and December 5, 2008, and February 12, 2009 was also received. An updated application dated June 17, 2009 and additional information dated July 1, 2009 was later received.

EOP includes facilities for the handling and treatment of the plant's storm water and wastewater, the storage of hazardous and non-hazardous residues, and the loading of residues for off-site transport.

Wastewater is collected from the production or operating units at St. Charles Operations (SCO) and from the Amerchol facility in Greensburg, LA. Each production unit at SCO that generates process wastewater operates one or more process sewer sumps that accumulate process wastewater. All water accumulated in the gravity sewer system, including certain storm water, is pumped to the wastewater treatment facility (WWTF) via a system of piped headers. Some process wastewater streams, particularly those containing odorous and volatile hydrocarbons, are pumped directly to the headers without contacting the gravity sewer systems.

Four (4) headers are routed to the WWTF, including stainless steel, old and new carbon stell, and transite headers. Each header routed to the WWTF is monitored for both total carbon (TC) and pH. When the total organic carbon concentration in any header exceeds its internal limit, or in high rainfall conditions, flow is diverted to a 2.5 million gallon surge tank (EIQ No. 199k). Material in the surge tank is returned to the headworks of the WWTF at a controlled rate to minimize fluctuations in the hydraulic and organic loads to the biological system.

With the maximum aeration capacity of the current system at 4600 hp, the system can treat up to 110,000 lb TC/day. By monitoring the influent feed rate and maintaining the TC load at 110,000 lb/day or less, the system has historically achieved approximately 99% removal of organics. The industry standard for organic removal in "well operated" biological treatment systems is 95%. The annual average feed rate is typically closer to 55,000 lb TC/day.

Wastewater entering the WWTF is fed to two (2) pH adjustment tanks. Wastewater entering the ph adjust tanks is routed to three (30 primary clarifiers. Wastewater overflowing the clarifier weirs drains by gravity to an equalization sump tank (EIQ No. 199L). From there it is pumped to an equalization tank (EIQ No. 199M). The ph adjustment tanks and the primary clarifiers are open-topped while the surge and equalization tanks are covered system with one vent (EIQ NO. 3233-Equalization and Surge Wastewater Treatment Header).

After primary treatment, the wastewater enters two (2) 10 million gallon air stabilization basins. These basins receive feed from the equalization tank or the surge tank, stormwater sump, and recycle from the secondary clarifiers. Effluent from the air stabilization basins is pumped to three 93) acroflocculators and then to three 93) secondary clarifiers. Water overflowing the weirs on the secondary clarifiers is discharged to the Mississippi River through an internal collection system in accordance with the state wastewater permit.

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Both hazardous and non-hazardous residues generated in the operating units at the Taft facility are stored in six (6) above ground, fixed-roof storage tanks. Residues are shipped offsite via a tank truck vapor-balanced loading rack.

Project

UCC proposes the following:

- To convert the UNOX tanks (EIQs 3204-3215, Process Vessels 11-13, 21-23, 31-33, 41-43) to surge capacity service, including a new wastewater header and sump tank.
- Update of Wastewater Treatment Facility emissions using EPA's Water9 Model and UCC's most current knowledge of Residue and Wastewater Compositions. This update is responsible for the increase in toxic air emissions above their minimum emissions rate (MER).
- Deletion of storage tank 1519 (EIQ No. 199H), Diesel Pump 1 (EIQ 3217) and Diesel Pump 2 (EIQ No. 3218).
- Update of all residue Storage Tank calculations to reflect current materials stored and current material compositions.
- Include in cap, WWTF-Waste Water Treatment Facility CAP, existing tanks, EIQs 3228-3232 & 3234-3267, and reconcile emissions.
- Reconcile into the permit six (6) existing firewater diesel pumps operated as emergency back-up firewater pumps to maintain firewater pressure in an emergency. Additionally, Firewater Pump #3 will be reconstructed.
- Include sumps (EIQs 3248-3264) as part of WWTF CAP except for LATEX sumps (EIQs 3266 and 3267).
- Add insignificant activities as per LAC 33:III.501.B.5.A.3.

Proposed Permit

Permit 210-V2 will be the renewal/modification of Part 70 operating permit 2104-V1 for the EOP.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	2.77	2.52	-0.25
SO_2	2.58	2.88	0.30
NO_X	39.01	36.43	-2.58
CO	8.41	7.88	-0.53
VOC *	277.52	153.09	-124.43

* Includes 130.08 TPY of Louisiana Toxic Air Pollutants (TAPs)

Non-VOC TAPs

Pollutant	Before	After	Change
Methylene Chloride	<0.01	Delete	-<0.01
Sulfuric Acid	0.60	0.15	-0.45
Ammonia	27.38	27.38	-
Tetrachloroethene	<0.01	0.26	0.26
Chlorine	<0.01	-	-<0.01
Hydrochloric Acid	<0.01	-	-<0.01
Hydrogen Sulfide	<0.01	-	-<0.01
Nitric Acid	<0.01	-	-<0.01
1,1,1-Trichloroethane	<0.01	-	-<0.01
TOTAL	27.98	27.79	-0.19

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

For the applicability and exemptions of selected subject items at the unit, refer to Section X - Table 1. Applicable Louisiana and Federal Air Quality Requirements, and Section XI -Table 2. Explanation for Exemption Status or Non-Applicability of a Source, of the proposed permit.

Prevention of Significant Deterioration/Nonattainment Review

PSD review is not required with this renewal.

Streamlined Equipment Leak Monitoring Program

The facility is not under a streamlined equipment leak monitoring program.

MACT Requirements

The applicable MACT requirements for the different sources are described in the Specific Requirements section of the proposed permit.

Air Quality Analysis

Not required.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

A permit shield was not requested.

VI. PERIODIC MONITORING

Applicable monitoring for all equipment can be found in the Specific Requirements Section of the permit draft. Parameters monitored are Total VOC, operating time, and fugitive leaks.

VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.